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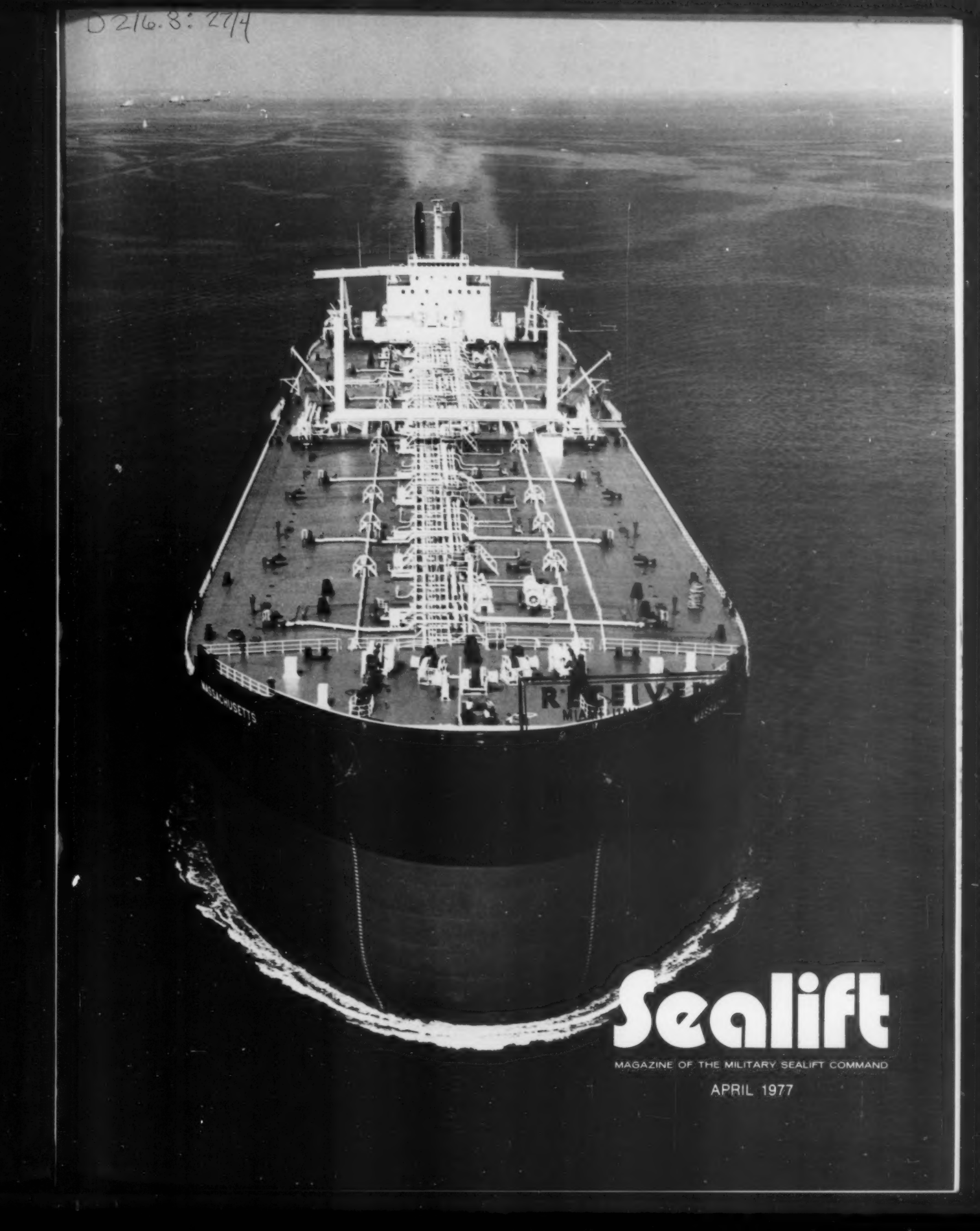


Sealift

MAGAZINE OF THE MILITARY SEALIFT COMMAND

APRIL 1977

Leadership Opportunities For Younger Specialists

Considerable attention has been given, and concern expressed for the decline in numbers of U.S. merchant ships since World War II, but less has been focused on a corresponding reduction in the number of seagoing jobs available to our merchant mariners. There are now less than half as many seagoing positions as there were 10 years ago.

An inevitable result of limited job availability has been the aging of the overall maritime work force. During World War II, hundreds of thousands of Americans served aboard merchant ships. They developed skills and expertise that enabled them to secure and retain responsible positions both at sea and ashore.

For the past three decades, these veterans have provided the leadership and the management needed by maritime organizations, including the Military Sealift Command. Opportunity for young men and women desiring to enter the maritime transportation field has not been as great as it would have been had there been a greater turnover of jobs, or if the number of positions had increased as the result of continuing growth in the U.S. maritime industry.

Our current maritime work force is composed of two extremes. One consists of the seasoned veterans at or nearing retirement age. At the other end are the young, the graduates of colleges and maritime academies, who have only a few years of maritime work experience. As the veteran leaders and managers retire, which they are doing in increasing numbers, there is a shortage of experienced assistants who stand ready to move into higher echelon jobs.

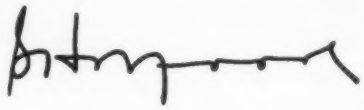
This situation provides a great opportunity for younger specialists in the maritime transportation field who look forward to advancement and the greater responsibility it brings.

But, it also suggests that those now at the top—who are contemplating retirement within a few years—have a great leadership responsibility. That responsibility is to select assistants with outstanding potential and provide them both training opportunities and work experiences to enhance their professional growth.

They should share their own experience, pass on their skills, and install in their eventual successors the qualities which are demanded of the maritime leader, manager and executive.

That does not mean, however, that they should try to persuade others to follow in their footsteps literally—to do the same things, in the same way. What has worked in the past may not be the best method for the future. What works for one leader may not be the best approach for another. Each of us is a unique individual. We learn, we innovate, we develop a better idea, or a more effective technique. That is what progress is all about.

Judging from the performance of the young men and women who already have a hand on the MSC managerial reins, I am confident that the future of this command is in good hands. But, that does not negate the responsibilities of those of us who make up the soon-to-retire generation to do all that we can to smooth the roadway for those who will succeed us. We should keep in mind that no greater tribute can be paid to a veteran manager or leader than that provided by the successor he has trained who steps in and gets the job done.



Commander, Military Sealift Command

Courtesy Bethlehem Steel Co.

COVER: The 265,000-deadweight-ton tanker Massachusetts is one of a growing number of seagoing giants. Story on Page 4.

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Sealift

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Transportation Changes

Transportation managers face many changes for different reasons.

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Using Used Materiel

MSC supply workers acquire surplus shipboard equipment.

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Tanker Evolution

Dramatic change in the size of tankers is a result of the worldwide thirst for oil.

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"The nation cannot afford to maintain separate dedicated military ocean terminal facilities."

Photos by Russ Egnor

Defense Transportation, Changing with the Times

By Paul J. Hyman

The need for change or the result of change are topics almost as popular as that all-time favorite, the weather. But recent events, including the installation of a new administration, the shortage of fuel in some sections of our nation, and of course the weather itself, spark continuing changes, some of which concern national security, transportation technology, and transportation regulation. And, like everyone else, we in Defense and in the field of transportation sometimes find it difficult to adapt to change.

No one described this difficulty more plainly than an old longshoreman and philosopher, Eric Hoffer. In his book, "The Ordeal of Change," he describes his experiences as a migrant crop picker in

the Imperial Valley of California. An experienced pea picker, he shifted up north and for the first time was faced with the challenge of picking string beans.

Harvesting a different crop in a different environment, using a different technique, made for a very hesitant harvest the first morning that the pickers were called to address the string bean vines. He emphasizes the elements of fear he felt in the change from picking peas to string beans.

Changes the transportation managers face are much greater. They call for drastic adjustments in our way of doing business. We are faced with new proposals for regulatory reform, with new jargon and new technology from automation, containerization, operations research and similar advances. There is a need for better teamwork and for more effective means of communications which will help specialists with diverse knowledge work together in different transport modes.

The most important innovation in transportation since the development of the steamboat and steam engine has taken place within the last decade. While the steamboat was slowly introduced during the 19th century, the use of containers has grown with "future shock" so typical of the 20th century.

The phase-down of operations in Southeast Asia drastically reduced the military need for transportation services and we in Defense find ourselves with under-utilized airlift and sealift capacity, and unneeded ocean terminals. We aim to manage this under-utilized capacity in such a way as to minimize its impact on the civilian transportation sector.

It is a primary Defense Department goal to encourage the existence of a large, viable commercial transportation system involving all modes of transportation, an industry that will be able to meet the demands of a future national emergency.

This over-capacity combined with traditional reliance on the civil transportation sector is further complicated by the belt-tightening in Defense spending of the past few years which has been pervasive in national security policy making.

New approaches are needed to meet the challenge of the dynamic environment we face in transportation, for example:

Joint Use of Transport Facilities with Civil Sector. Defense Department officials are looking at breakbulk cargo terminals at places like Oakland, Calif. and Bayonne,

"As terminal costs increase, Defense should cultivate a more harmonious relationship between military and civilian transportation organizations."

"It is a primary Defense Department goal to encourage the existence of a large, viable commercial transportation system."

N.J. with a view to setting up effective joint-use with the civil sector.

For example, at Bayonne this year, a concurrent-use arrangement has been initiated with Bethlehem Steel for an unused ship dry dock. The initial leasing action will generate approximately 100 commercial jobs and a half million dollars in annual revenue. The Port Authority of New York and New Jersey has expressed interest in longer-term concurrent use of approximately half of the 10-berth cargo handling facility at Bayonne.

The nation cannot afford to maintain separate dedicated military ocean terminal facilities. In 1970, Defense made a policy decision to depend on commercial container handling facilities, except for ammunition. The natural evolution of Defense reliance on the civil sector is to form a close partnership for the handling of the remaining military breakbulk cargo. Joint or concurrent military-commercial use of Department of Defense-owned ocean terminal facilities is a sensible answer.

These terminal facilities are retained to assure rapid expansion and flexibility of operations in support of contingency situations. Defense is heading for "joint use" with the facility maintained by and improved for private sector enterprise. This arrangement can enhance the local economy, stimulate additional commerce and provide commercial job opportunities. At the same time, the costly burden of facility under-utilization is eliminated.

In the years ahead, it may be possible to go beyond joint use of the water terminals by establishing joint tenancy relationships for air cargo terminals as well as using commercial passenger aerial gateways. As terminal costs become an increasingly larger percentage of total transportation handling expense, Defense should cultivate a more harmonious relationship between the military and civilian transportation organizations.

Joint Development with the Civil Sector. The need for better balanced national airlift and sealift policy has been receiving a great deal of emphasis in Washington.

Strategic mobility questions have been raised by several Congressional committees and former Secretary Donald H. Rumsfeld directed the Joint Chiefs of Staff to examine lift requirements to assure the ability to provide credible, conventional support of NATO. This study strives to strike a balance among the alternates of enhanced sealift, augmented airlift and prepositioning of new stocks.

Considering the long-range 1985-1990 prospects for strategic mobility, and the aging airlift and sealift assets, significant development efforts may be anticipated.

The air cargo carrier of the future should not be a dedicated military vehicle like the C-5 Galaxy. The high cost of aeronautical development and production dictate the need for cooperation among the civil and military sectors in the development of the cargo plane of the future.

Commercial shippers and carriers should be permitted to collaborate

with government agencies, Department of Transportation, the Civil Aeronautics Board and the National Aeronautics and Space Administration, to produce a useful military-civilian capability.

Another significant cost factor is the never-ending paperwork. A significant portion of the national freight bill goes for paperwork. Carriers prepare waybills, freight bills, receipts and reports. For the shipper there are bills of lading and manifests.

One survey recently found that commercial shippers often are influenced in mode selection by the difficulty of documenting cargo for a given carrier. The Defense Department recently took steps to increase the use of commercial paper in lieu of high-cost government bills of lading (GBL) and government transportation requests. For transportation charges up to $100—cash payment can be made from imprest funds without the burden of preparing GBL paperwork.

Many changes should be made to simplify supporting transportation documents. As the largest shipper, Defense has a special responsibility to foster the streamlining of transportation paperwork and often to take the role of an agent for change—a catalyst.

Already Military Traffic Management Command, working with the Motor Freight Classification Bureau, has succeeded in eliminating many of its obsolete listings of hazardous commodity groupings. That change will benefit both government and commercial shippers.

Adapting Commercial Practice to Defense. In packaging, Defense wants to promote the use of commercial specifications and greater use of automated systems. The several different levels of protection which now complicate military procurement specifications are a luxury that should be relegated to the past. The Defense Department must work with industry in adopting compatible packaging specifications.

Defense is borrowing from industry for the design of a new distribution system. Supply centers, depots and warehouses scattered across the country are being studied with the objective of developing a streamlined distribution configuration before the end of this century—one which better relates to the producers and transportation strategies of the future.

The joint logistics commanders have assembled a group of talented military and civilian logisticians who will recommend the number, size, type, location and ownership of national defense distribution facilities.

These people are using the same optimization modules and linear techniques employed by national grocery firms and the automobile industry to analyze the shipments, tariffs and demands placed on the Defense supply system in peacetime and during mobilization.

Military needs, however, do not always coincide with those of the commercial shipper. It is true that by changing military transportation techniques and adapting commercial physical distribution approaches, Defense will be in a position to exploit to the maximum national strategic lift capabilities in the time of an emergency. However, there are cases where the military transporter's need is truly unique. Defense must pay the price and make the investment necessary to develop needed military capability.

There are two such unique military situations in connection with developing container-oriented

"Commercial shippers and carriers should be permitted to collaborate with government agencies to produce a useful military-civilian capability."

distribution systems. This system involves handling containers over the beach in an unimproved port environment. Container ship capabilities are here to stay and in an emergency the country may need every ship it can get.

There are similar problems in the shipment of containerized ammunition and the promotion of logistically-significant equipment like flat racks and intermediate containers.

The most promising hope for the Defense transportation community is to help develop within the commercial sector an appreciation of military transportation requirements, and then to foster the development of techniques among commercial shippers and carriers which will help fulfill Defense needs. That demands a continuing exchange of ideas between the military and industry.

The Army's training with industry program is to be commended for providing a foundation for future understanding and solutions to national defense transportation problems. Personnel assignments under the Inter-governmental Personnel Act also promote the cross-fertilization we need.

One of the most important and most difficult functions of the Defense transportation system is control of intransit cargo, especially containers stuffed at various points in the distribution system. Industry is cooperating in standardizing the dimension and design strength of containers—in making them more alike for handling the transportation.

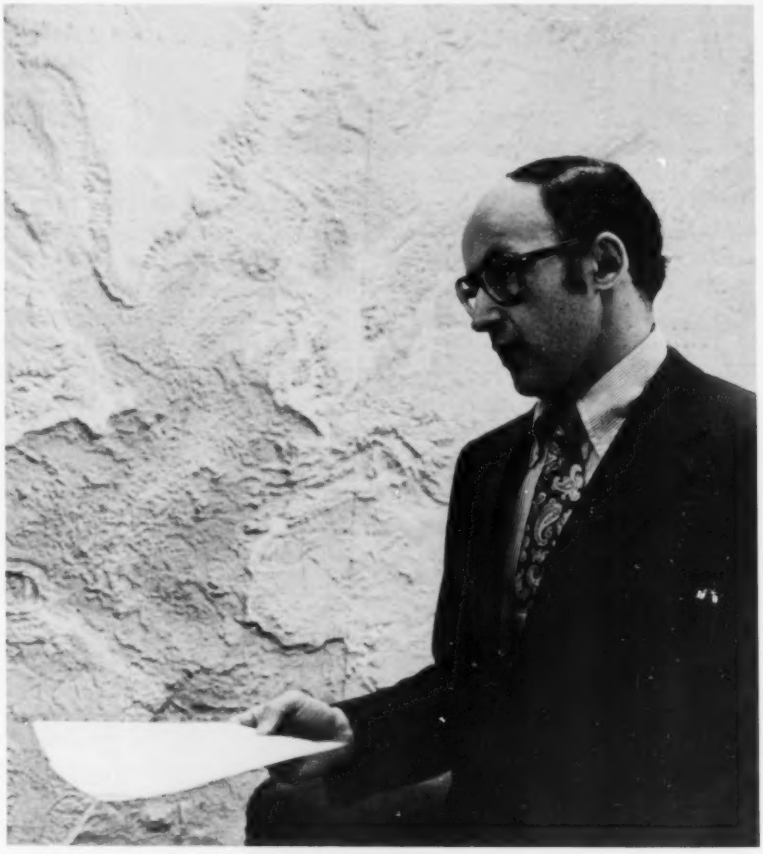
Physical standardization is important, of course, but information must be associated with a container to identify container uniqueness in destination and cargo content. "What is inside?" "Who does it belong to?" " Where is it going?" "Where does it come from?" "Who is responsible?" Information provided must be reliable, accurate, complete, current, and meet certain standards.

Another area where Defense is using the expertise of industry is the continuing close working relationship with industry groups such as the National Defense Transportation Assn. An NDTA committee on interfacing container control systems has just published a report calling for an increase in automated interfaces linking military logistics-traffic managers with commercial control systems.

It is not easy for a military logistician-traffic manager to influence the attitudes of a "bottom-line oriented" carrier. I often recall a group of students who were discussing techniques for handling vehicles in container ships.

Someone asked, "What goes into the decision for a container line operator to offer a new kind of service?" The response: "When we do something different we don't look good. It shows on the bottom line for the first reporting period and somebody 'rips his breeches.' We do best what we have done before." There it is, the same fear Eric Hoffer felt in the bean fields of California.

Transportation has helped forestall many challenges to freedom during our entire history, right down to last year's rescue of the pirated container ship Mayaguez. Because of this, transportation professionals develop an excellent perception of national



"The need for more balanced airlift and sealift policy has been receiving a great deal of attention in Washington."

defense essentials.

Transportation professionals are aware of the economic challenges this nation faces—from the shipyards to the shipping lanes.

Transportation professionals understand the scope and nature of strategic challenge presented by the Soviet airlift and sealift to Africa.

These are external challenges, typical of many reported in the newspaper and trade journals. However, there are other challenges to be aware of—the challenges of changing technology and the fear of adopting new methods, and creating new relationships between government and the transportation community. The introduction of change is a risky thing, but there are times when we have to know how to handle risks.

The nation has just completed a bicentennial celebration of the country's revolutionary origins. The spirit and pride generated during the year-long celebration will be wasted if it does not renew our faith in the innovative spirit which gave birth to America. That same innovative spirit has been an essential ingredient in the introduction of the many changes during the past 200 years. It is no less vital today. ⚓

"New approaches are needed to meet the challenge of the dynamic environment we face in transportation."

Paul J. Hyman is director for transportation and warehousing policy within the office of the Secretary of Defense. He directs the development of Defense Department transportation programs involving Military Sealift Command, Military Airlift Command and Military Traffic Management Command.

From 1973 to 1975, he was director of supply management policy in the office of the Assistant Secretary of Defense for Installations and Logistics. Hyman has a bachelor's degree from Cornell University and a master's degree from George Washington University, majoring in economics and education.

Bob McDermott, engineering, and Mary Bogosian, supply management officer, discuss acquisition of shipboard equipment.

MSC Saves Time, Money Via the Recycle Route

By Linda M. Quinones

Employees of the Military Sealift Command supply office know that those who say, "You can't get something for nothing" are not always right. The Defense Property Disposal Service (DPDS) recycles surplus government-owned equipment and material and everything that appears in its detailed stock listings is free to Department of Defense agencies.

With headquarters in Battle Creek, Mich., the disposal service each year recycles, sells, or takes in for storage, property that originally cost $6 billion. Included in the disposal service's inventory is 500,000 tons of scrap. The material, often reusable and sometimes new, is stored in worldwide disposal centers and is listed in catalogs regularly provided government supply offices.

During a six-month period ending last January, MSC saved more than $250,000 by getting shipboard equipment such as generators, shafts and propellers from the disposal service.

The surplus property listings are a tremendous help in reducing command overhead cost," said Mary Bogosian, MSC headquarters supply management officer. "We save money, time and energy."

"Most equipment the command gets is used aboard MSC nucleus fleet ships," she said. "When possible, we save time by ordering replacement parts from the disposal

service instead of buying new ones. It could take two years to obtain certain large pieces of equipment from a manufacturer. That would cost more and make it more difficult to keep the ships operating."

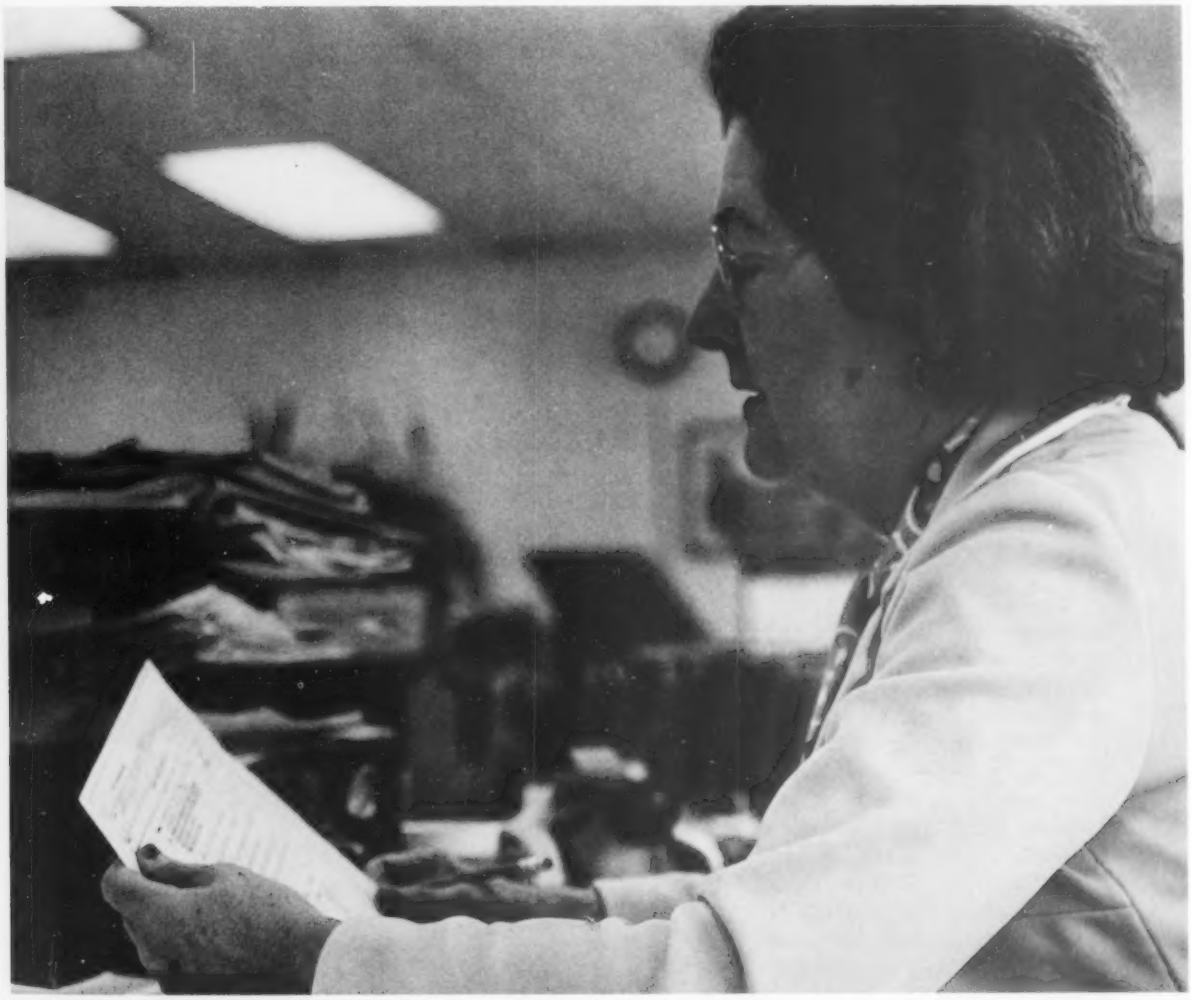
Bob McDermott of the engineering operations division reviews the property catalogs each month for equipment the command may need. In charge of material mobilization, he works with the supply division in meeting ship equipment needs.

"The catalogs list items both by name and stock number," McDermott said. "Its general condition, the quantity available, and where it is stored are also shown. When I find something we can use, I reserve it so that it cannot be picked up by someone else. That was the case when I called about some controllers (electrical switches) that were listed in the catalog. Someone already had reserved five, but we picked up the other eight." When equipment is needed by MSC, McDermott notifies the supply division which takes steps to acquire it.

Catalog codes describe the condition of the property. N-1 is a code for unused property in excellent condition, N-3 for unused property in fair condition. Code 0-1 property has been slightly or moderately used but needs no repairs. "Most of the items MSC obtains carry these codes," McDermott said. "But if it's a difficult item to find, the command may take it even if it requires some repairs."

Once an item is reserved, arrangements are made to ship it to the nearest MSC stock point. MSC bears cost of transportation and packing. Command engineers then inspect it. If it is in satisfactory condition, supply puts it in stock.

The entire supply division staff, headed by Capt. Robert Van Osdol, is involved in acquiring or handling



Documents required to obtain surplus property are checked by Margaret Watson, a supply specialist.

Supply Technician Donna Calhoun prepares paperwork to acquire surplus equipment from the Defense Property Disposal Service.

Jim Wenzel assigns stock numbers to surplus equipment coming to MSC.

surplus property. Jim Wenzel, supply cataloger, assigns stock numbers. Margaret Watson, general supply specialist, and Donna Calhoun, supply technician, handle shipping while Marshall Shannon, inventory management specialist; Lamar Truluck, clerk typist, and Virgie Braswell, supply clerk, maintain stock records. Sharon Egnor, secretary, and Frances Carter, clerk-stenographer, prepare documents and Jim Augustine, supply systems analyst, is responsible for acquiring galley and recreation equipment.

Examples of surplus property MSC has obtained are turbo electric generators for the USNS Hess, formerly the SS Canada Mail, a cargo ship being reconfigured for special projects. Engines for some of the tank landing ships MSC once operated also were picked up from surplus stock.

When property is in excess of MSC needs, it is turned over to the Defense disposal service. "It also costs money to store equipment," said Miss Bogosian. "We continually weed the deadwood out of our inventory, getting rid of equipment from ships to be inactivated or scrapped."

"The Defense Property Disposal

Service is only one source of surplus equipment," she said. "A lot of surplus property is obtained before it winds up in the disposal system. Headquarters supply staff and area command employees sometimes learn of items the command may need through their dealings with employees of other ship operating agencies."

Captain Van Osdol is an implacable foe of both wasted money or effort. As a result, supply office personnel are conditioned to look for ways to do their jobs better rather than waiting to fill requests for materials, equipment or service.

Thus, while MSC operates only one stores ship—USNS Rigel—it is taking custody of another, USS Vega. The latter ship is a sister ship to Rigel and is being scrapped by the Navy. MSC has first crack at all equipment and systems which might be used to keep Rigel in top operating order. Vega will be anchored at Oakland until MSC has had a chance to remove whatever equipment is needed and the ship then will be turned over to the Maritime Administration. Even more important than the obvious savings will be the availability of spares to support fleet support operations by the Rigel.

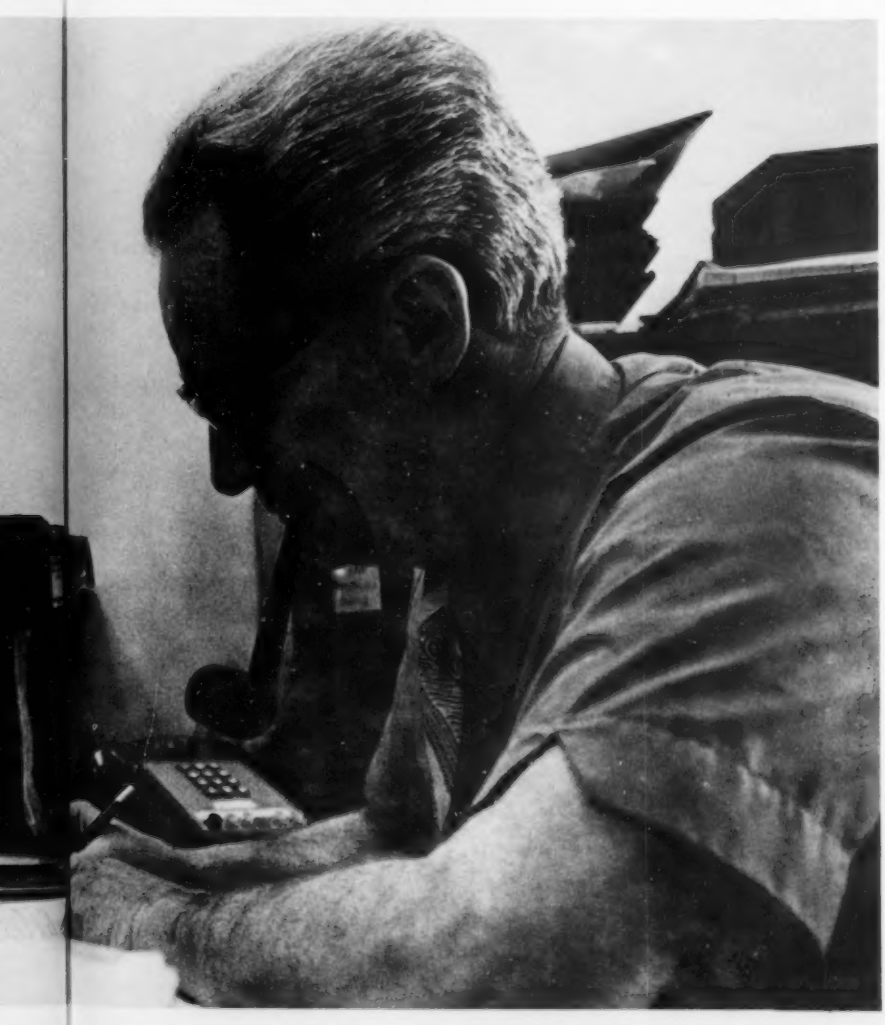
Pig iron, obtained from the General Services Administration, now is being used as ballast aboard USNS Dutton and Myer. The government controls distribution of pig iron as it does other materials considered critical to the country's national defense. "Loaning it to MSC saved us the expense of buying it and GSA the expense of storing it," Miss Bogosian said.

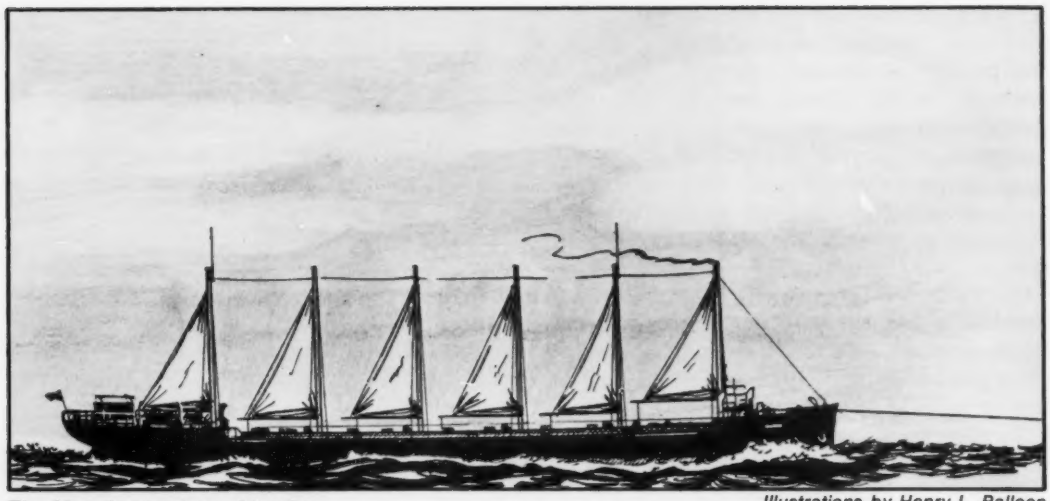
"Frequently the Naval Sea Systems Command offers equipment removed from ships to be laid up," Miss Bogosian said. Last June MSC acquired three turbo generator sets from that command for use aboard USNS Bowditch. Estimated to have cost $12,000, MSC got them without cost. In November 1975, MSC obtained two others for the USNS Dutton.

Sometimes MSC buys surplus equipment from commercial salvage companies. Last March MSC purchased equipment for the USNS Hess for $3,000. Bought new, the equipment would have cost about $35,000.

"So far all of the surplus material the command has received has been used for its original purpose, except for the iron used for ballast," Miss Bogosian said. "But some agencies are saving taxpayers' dollars by adapting surplus property to serve needs other than what it was originally intended for."

Attempts of the Defense Property Disposal Service to recycle equipment not needed by the holding agency are only as effective as the skill and knowledge of the people who run the program—and the "buyers" who do indeed get "something for nothing." ⚓





The Navajo was towed by the Iroquois and carried about 9,250 tons.

Illustrations by Henry L. Balloon

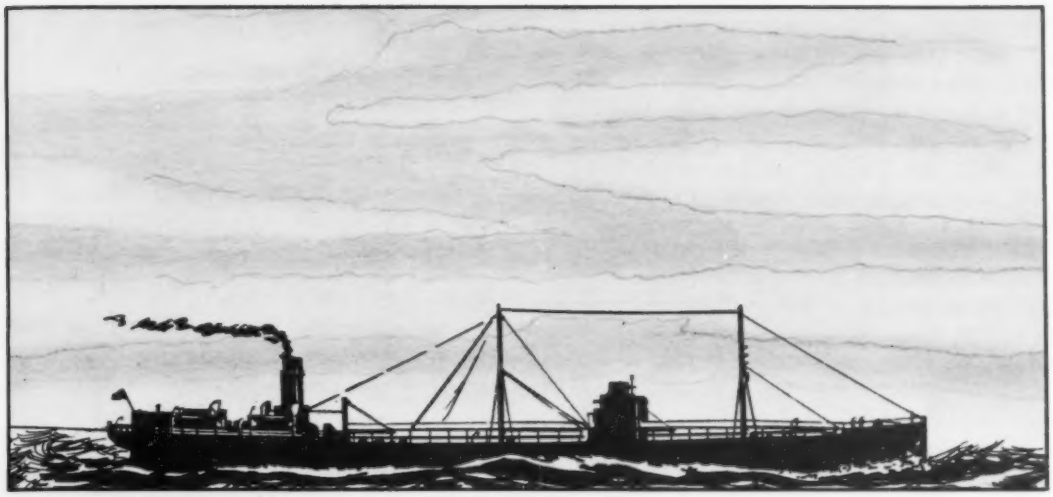
TANKERS Grow, Grow, Grow

By Louis Panarale

Among the many questions left unanswered by historians is when ships were first used to carry oil. But with all of the pressing problems now facing the petroleum and tanker industries, the answer would only be a contribution to a seemingly endless store of trivia.

Trivia lovers already know that Chinese Newchwang junks, each with a cargo capacity of about 50 tons, carried bean oil in the 18th Century. That is relatively recent, as time flies for the historians, but it is a far cry from today's jumbo tankers that carry millions of gallons of crude oil or petroleum products in their vast bellies. A typical Newchwang junk measured about 55 feet in length and had a beam of 13 feet. Alongside a jumbo tanker of today, which may be over 1,000 feet long with a beam of 170 feet, the two make Mutt an' Jeff look like identical twins.

Current world traffic in petroleum products is as much a product of the industrial revolution as the many products now considered necessities of life. Whales once provided most of the oil needed, but by the middle of the



The Iroquois, nicknamed the "Horse," was a steam tanker that carried about 8,000 tons of oil.

19th century England's shale oil industry and the U.S. mineral oil industry were growing rapidly, producing lubricants needed to keep machines and factories humming.

In 1859, Edwin L. Drake drilled the first productive oil well in the United States at Titusville, Pa. It and several other northwestern Pennsylvania communities immediately became boom towns and Philadelphia became a major port for shipment of U.S. oil to the United Kingdom.

The first ship to carry oil from the United States to Britain was the Elizabeth Watts, a 224-ton vessel. That was in 1861. The oil was stored in barrels and was considered so explosive that a crew had to be shanghaied for the first voyage. But, the Elizabeth Watts made the crossing to England safely and a new era in shipping had begun.

The European and American shippers were the pioneers. Their efforts resulted in the ships and systems used today. For example:

1863—The Atlantic, a small iron sailing vessel built in England, was designed to carry petroleum "without the aid of casks." The ship had eight tanks and was one of the first to have its own cargo pumps.

1869—The Charles was another of the early vessels that carried petroleum in iron tanks. Sailing between the United States and Europe, it could carry 794 tons of oil in 59 tanks along the bottom of the holds and in the 'tween decks.

1872—The Belgian S.S. Vaderland was the first steamer designed to carry petroleum in bulk. Totaling 2,748 gross tons, she was 320 feet in length with a beam of 38 feet. Originally the ship was to carry European immigrants to the United States and make the return trip with oil. Authorities decided the idea was too dangerous and the plans for carrying oil were dropped. Dry cargo was carried in the tanks but there is no record that the Vaderland ever delivered oil.

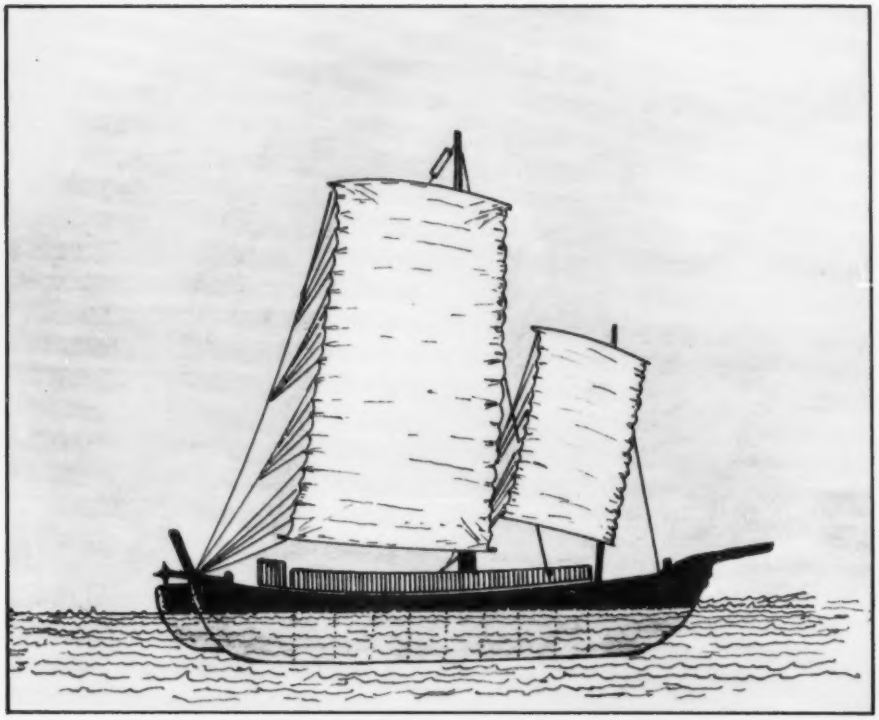
1878—The Zoroaster was the first operating steamship tanker. The vessel was built in Sweden by Robert and Ludwig Nobel. They were the brothers of Alfred Nobel, inventor of dynamite and the founder of the Nobel Peace Prize. Zoroaster also was notable in that she burned oil as fuel rather than coal. Operating in the Caspian Sea, she flew the Soviet flag.

According to Frank O. Braynard, author of Famous American Ships, the first truly modern tanker was launched in 1886. It was the British-built, German-owned vessel Gluckauf. Writing in the American Petroleum Institute Quarterly, Braynard said the Gluckauf was the prototype of today's tanker in many respects.

"Her design incorporated the best of all the earlier experimental oil carriers and many new features," Braynard said. The hold was subdivided by a centerline bulkhead and by athwartship bulkheads. Her hull plating itself was the tank."

Gluckauf's maiden arrival at New York in 1886 was far from gala. Longshoremen, oil workers and cask makers saw in the Gluckauf an end to their trades. Coal merchants were persuaded to boycott the ship, but their efforts were unsuccessful and the ship was used for many years.

The first U.S. steam tanker was the Standard, built in 1886 at Chester, Pa. for Standard Oil Co. Only about a dozen steamers then



The 18th century Newchwang junk with its 50-ton cargo capacity for bean oil is a far cry from a modern tanker that can carry millions of gallons.

carried petroleum in bulk. But the demand for petroleum grew so much that by 1891 between 80 and 90 petroleum steamers were operating on the Atlantic alone.

The advent of the steam tanker did not immediately end the construction of sailing ships to transport fuel. Ten years after steam tankers began operating, sailing vessels known as kerosene clippers still were being built in the United States.

The ships lifted kerosene from the United States to the Orient. Their cargoes were primarily cases, each case containing two five-gallon cans of kerosene. They also carried small oil lamps which were given away to promote the use of kerosene.

The Anglo-American Oil Co. operated a fleet of 23 kerosene clippers on runs to the Orient, 12 converted for the purpose and 11 built to order between 1901 and 1903. Most were four-masted barques although some were three-masted. Vessel names advertised various brands of oil, such as Astral, Brilliant, Daylight, Comet, Eclipse, Acme and Atlas.

Anglo-American considered the clippers highly productive ships and used them extensively between 1900 and 1910. However, some met with disaster. Rough seas brought an end to two in the Java Sea and two more in the Atlantic. One burned at sea, one disappeared without a trace and in 1916 another was sunk by a torpedo.

Standard Oil Co. developed its fleet along different lines. It used tank barges. Many of the smaller barges were formerly power-driven ships. The barges, towed by Standard's ships, generally plied routes along the U.S. Atlantic and Pacific seaboards. But some of the larger barges were towed from New York, round Cape Horn to San Francisco. Some were towed to Japan and others made transatlantic crossings.

Success of the large barges prompted Ango-American officials to come up with a compromise. They commissioned the construction of the Iroquois in 1907 and the Navajo in 1908.

The Iroquois, nicknamed the "Horse," was a steam tanker that carried about 8,000 tons of oil. It towed the Navajo, the "Cart," which transported about 9,250 tons. The Navajo's lines were not those of a sailing ship but she was rigged as a six-masted schooner.

The two vessels sailed the Atlantic for many years with notable success. In heavy weather, when the strain on the lines became too great, the tow was slipped. On one such occasion, the Navajo, under the sail alone, reached her destination before the Iroquois, a classic example of the cart before the horse.

Continued development of the oil industry in the 20th century provided employment for sailing ships forced out of other ocean trades by steamers. For transporting oil, the slower speed of the sailing ships seemed to be no great disadvantage.

The sailing tanker Calcutta continued on transatlantic service until 1921. The Navajo ended her days in 1936 when she was ceremoniously scuttled off Trinidad. The German-owned Andromeda, built before 1885, was in service until 1939 although in her later years she was fitted with two diesels of modest power.

But the start of the 20th century was the time for growth in number and improvement in design of steam-driven tankers. The discovery of oil in Texas in 1900 stimulated a construction boom that lasted until the outbreak of World War I in 1914.

It was in this period that the Nobel brothers introduced the first diesel-driven tankers and Shell Oil Co. commissioned construction of the Vulcanus, the first seagoing motor tanker. The British based Eagle Oil Transport Co. built a series of vessels, each over 17,000 tons deadweight. By far the largest in service, the Eagle ships were about 530 feet in length with a beam of 66 feet.

In the USSR, tankers were built so rapidly that by 1907 its steam-powered tanker fleet totaled 136 units with a carrying capacity of more than 140,000 tons. The Soviet Union also had 166 sailing tankers and 1,500 bulk oil barges, bringing total capacity to about 3½ million tons.

In the United States tankers constructed during the war years proved sufficient for immediate post-war needs. The few U.S. ships built after the war were considerably larger than other ships built at the time. In 1921 two of the largest were the Standard Oil ships William Rockefeller and John D. Archbold, both 22,600 deadweight tons. They measured 572 feet in length and had a 75-foot beam. The Rockefeller sailed 21 years before it was sunk by a torpedo off Cape Hatteras in World War II. The Archbold survived the war.

The number of tankers built in the United States during World War II was great. One of the most effective types was the T-2, of which 525 were built. Some T-2s were given more powerful propulsion plants but all measured 523 feet in length by 68 feet breadth and were 16,800 deadweight tons.

In 1949 the T-2 was the predominant tanker in both U.S. and foreign-flag fleets. The U.S. tanker fleet, seven million deadweight tons, was the largest in the world. At the same time new "supertankers" of 28,000 and 30,000 deadweight tons were being built. As the years passed, size of tankers grew to 60,000 tons and 80,000 and 100,000 tons, and the term supertanker became somewhat confusing.

In the U.S. tanker fleet, average ship size has increased while the number of ships has been reduced. Until around 1970, the total deadweight tonnage of the U.S. fleet remained constant at about seven million tons. But discovery and development of the North Slope Oil fields of Alaska and the 1970 Merchant Marine Act gave new life to U.S. tanker construction.

Progressively larger tankers were introduced after World War II because bigger ships were more economical—and provided bigger profits. There was also a tremendous growth in demand for petroleum products. At the same time, new refining facilities were built in oil-consuming countries. Increasingly, it was crude oil, not

One of the giants of the sea is the 400,219-deadweight-ton Esso Japan, 1,188 feet long and 230 feet wide.

the refined product, that was transported by sea.

With almost two billion tons of oil now moved by ships each year, transportation costs are substantial. It has been estimated that the cost of transporting oil 11,000 miles on a 50,000-deadweight-ton tanker is about $2.40 per barrel. On a 250,000-ton-tanker the cost would be $1 per barrel.

The supertankers of today are measured in hundreds of thousands of deadweight tons. The Very Large Crude Carriers (VLCCs) are 160,000 tons or more. The Ultra Large Crude Carriers (ULCCs) begin at around 300,000 tons and plans and capability exist to build 1,000,000-deadweight-ton tankers.

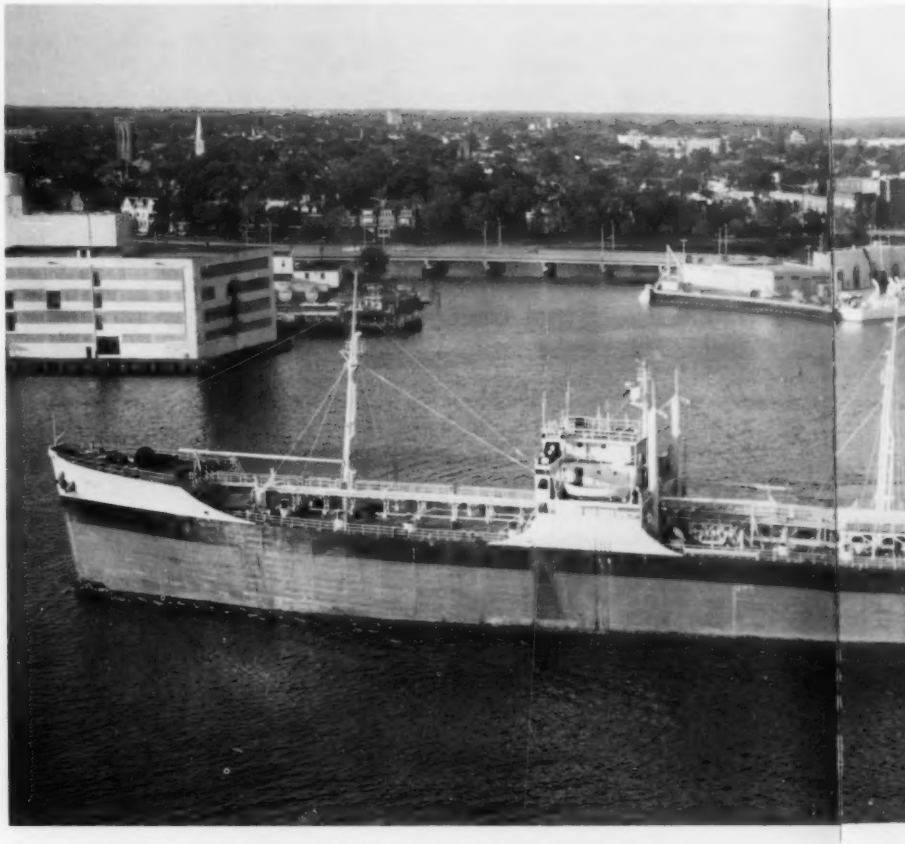
The Nisseki Maru is a 361,000-ton-tanker that sails under the house flag of the Tokyo Tanker Co., Ltd. At a length of 1,139 feet, the Nisseki Maru is about 300 feet shorter than the Empire State building. The ship is 179 feet wide and needs 89 feet of water.

Two years ago the Nisseki Maru was the largest tanker in the world. The distinction was soon claimed by her sister ship, the 450,000-ton Globtik Tokyo. But Globtik Tokyo did not hold the title as the world's largest ship very long.

The largest ship afloat today is the 550,000-ton Batillus, delivered in mid-1976 by Chatiers de l'Atlantique of Saint-Nazaire, France, to Societe Maritime Shell. It measures 1,350 feet in length and 206 feet in the beam.

And how long will Batillus claim title as the biggest mobile object ever created by man? Not long. It was announced in February that a letter of intent for the construction of three 600,000-deadweight-ton nuclear powered tankers was signed by Newport News Shipbuilding and Globtik Tankers U.S.A., a corporate arm of the London based Globtik group.

If the proposed construction goes through, the tankers will be by far the largest in the world and the first new commercial vessels in many years to be nuclear powered. ⚓



Decks of supertankers are so vast that crewmen use bicycles and small motorcycles to get around.

MSC acquired the T-2 tanker USNS Cache Oct. 1, 1949. At 16,800 deadweight tons, T-2s were the supertankers of World War II.

Command Tanker Fleet Meeting New Challenges

By Louis Panarale

From the time of its establishment in 1949, MSC has operated tankers that deliver petroleum products worldwide for the Army, Navy, Marine Corps and Air Force. But, products have changed, as have delivery requirements, and the current tanker fleet is considerably different than that MSC operated in the mid-century.

For one thing, the number of tankers in the MSC fleet is smaller. In 1949 the command was assigned 55 World War II T-2 tankers—averaging about 16,800 deadweight tons. The last were laid up in 1974.

Despite the reduced size of the MSC tanker fleet, capability has not been drastically reduced. The 29 tankers now controlled by the command are larger and somewhat faster than World War II T-2s—and are as productive as 50 of that type tanker.

Most of the original ships were government owned. Only seven of the 29 tankers MSC now controls are government owned. Fourteen are bareboat chartered and the remaining eight are commercial ships operated under time or consecutive voyage charter.

Geographical areas served are much the same, the Arctic, Antarctic, Alaska, Europe, the Far East, and wherever else U.S. forces are stationed. But, MSC now directly supports one big "customer," the Defense Fuel Supply Center, which manages the Defense Department worldwide fuel inventory and levies delivery requirements on MSC.

Products carried have changed. In the early years of MSC operation, before the development of jet aircraft and Navy use of distillates and diesel fuel, command POL movements were about a third black oil and two-thirds clean or refined products—mainly Navy special fuel oil and aviation gas. Tanks now are loaded primarily with jet aircraft fuel (64 per cent) and diesel fuel (26 per cent). Fuel oil accounts for 4 per cent of MSC deliveries and aviation gas only 1 per cent. All of which shows that the capabilities of the air arms of the Navy, Marine Corps, Army, and Air Force are linked inexorably to capability of the MSC tanker fleet.

Because of the difference in products, tankers now require coated tanks which insure the purity of the load and thus the efficiency of the engines the fuel eventually powers. MSC was a pioneer in the development of coated tanks, working hand-in-glove with the industry to develop the most effective coatings—a practice that still goes on.

One characteristic of the MSC tanker fleet has changed little. In the early years, all but six of the government-owned ships were operated by four commercial companies who manned them with union seamen. Currently, commercial maritime companies operate all but three MSC tankers, and the three Civil Service manned ships are small 30,000-barrel coastal tankers operating overseas in west and mid-Pacific. Historically, despite its strictly military mission, MSC has relied upon the U.S. Merchant Marine to provide tankers, crews, and managerial expertise—a practice which refutes the handful of professional alarmists who like to view MSC as a "merchant shipping line" in competition with private industry.

Further indication of command reliance on industry support is provided by MSC procurement of 29 tankers over the years by some form of build and charter arrangement. Private capital invested in the 29 ships, constructing them specifically for long-term charter to the command.

In addition to its worldwide tanker fleet, controlled directly from command headquarters, MSC now operates eight oilers which provide dedicated support for the Navy's combat fleets. But, the tankers normally involved in point-to-point deliveries are no strangers to underway transfer of fuel to Navy ships. They frequently are called upon to consolidate their loads with Navy or MSC-manned fleet oilers. Navy fleet ships change course to rendezvous with the MSC controlled tanker to pick up a load of needed fuel, thus saving delivery time and operating cost. This capability has been especially important in the Indian Ocean where Navy fleet ships operate far from normal support bases.

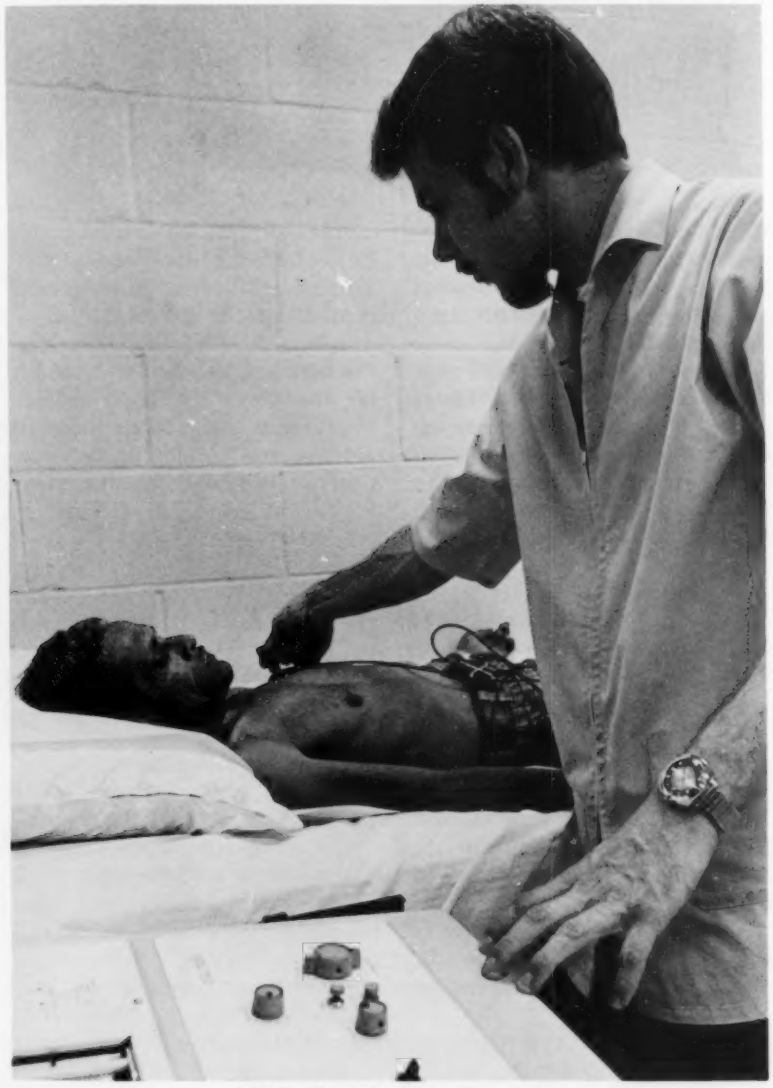
MSC tankers tend to follow commercial trade routes from refinery to user—but current routes are different than those traversed in earlier years. Where most products were once picked up at refineries on the U.S. Gulf Coast, in the Arabian Gulf and the Caribbean, MSC tankers now call at refineries located nearer the users of the cargo they carry. Typical are refineries on Guam, in Korea, Hawaii, Taiwan, and Alaska.

An important by-product is often generated by the tanker crews—the saving of lives of the fellow mariners. Several MSC tankers have earned awards and their crews have been honored for helping vessels that were afire, sinking, damaged by a collision or the victim of some other form of tragedy. That, of course, represents no change for professionalism is the constant hallmark of the MSC tanker fleet. ⚓

Back from an experiment on the effectiveness of plastic tank coatings, the USNS Yukon was an impressive sight at the Brooklyn Army Terminal in 1959.

Improving Medical Care For MSC Mariners

By Linda M. Quinones



HM3 Randy Bradley of MSCLANT medical department takes a cardiogram of Eulalio Delgado.

"Few people ever think whether medical assistance will be available if they are injured or become ill on the job," claims Dr. Edward J. Sullivan, Military Sealift Command staff medical officer. "The reason is, of course, that medical facilities are usually close at hand. That's not the case, however, for merchant mariners, for the nature of their work can isolate them from doctors and hospitals."

A Navy commander, Dr. Sullivan has been MSC's part-time medical officer since 1972, spending Wednesday and Thursday mornings at MSC headquarters as administrator of the command's medical program. The rest of the week he heads the Navy Bureau of Medicine and Surgery health practices branch, part of the occupational medicine division.

"Injuries or illnesses are a serious threat to the Civil Service crewmen who man MSC ships," said Dr. Sullivan. "Fortunately they are not common."

The command's accident frequency rate for seagoing employees is less than three accidents for every million manhours worked. The maritime industry rate is six accidents per million manhours.

"There are two major reasons why MSC has a low accident rate

Medical officer Dr. Frank Sullivan says that improving medical assistance to those who man MSC ships is a continuing task.

and a relatively small number of medical emergencies aboard ship," said Dr. Sullivan. "First, the mariners who work for MSC are experienced seamen and very safety conscious. Secondly, before the command hires a seagoing mariner, he is given a thorough physical examination to identify those with potential health problems."

This screening process is repeated periodically and employees receive innoculations to protect them from disease.

MSC has several health units in the area commands that have operational control of most MSC ships. Unit personnel handle physical examinations and other duties, such as rodent and food storage inspections, to help assure MSC crewmen stay healthy.

The command also relies on assistance from the staffs of Public Health Service hospitals and outpatient clinics. Any American merchant mariner with proper identification can receive free treatment at these facilities. Should a medical emergency arise at sea, a ship master can contact public health service doctors for instructions on how to deal with it.

Navy medical facilities are another source of assistance for MSC Civil Service crewmen, including physical examinations, immunizations and treatment of occupational illnesses and injuries and emergency treatment of non-occupational conditions.

The health unit at MSC, Atlantic, located in Bayonne, N.J., is headed by Dr. Neil Conan. Medical administration officer is Lt. Robert Sloan. Several Navy corpsmen and a part-time radiologist complete the health unit's staff. Its main function is to provide medical assistance to crewmen of MSC, Atlantic ships. Its facilities include a laboratory for blood screening and urinalysis, X-ray equipment, and hearing and sight testing equipment.

Lieutenant Sloan said from 10 to 45 crewmen a day visit the health unit, primarily for physical examinations and immunizations. "We also provide limited treatment for such things as cuts, colds and sore throats and refill prescriptions. Crewmen who can not be properly treated here are referred to the Public Health Service Hospital on Staten Island."

The staff of the health unit at MSC, Pacific, located in Oakland, is headed by Cmdr. Mark O. Abbott, on an additional duty basis. His staff includes a full-time civilian administration officer, Frederick Sanciangco, and two health technicians.

Health technician Everett Davis, Sr. said much of the work done involves maintaining seafarer's medical records and conducting rodent and food storage inspections. "In addition, we evaluate the ability of ship crews to handle medical emergencies and monitor their first aid training." Major medical support is provided by the Navy Regional Medical Center in Oakland.

"Despite screening procedures, there are always some problems that are not identified, and are to some degree unpreventable," Dr. Sullivan said. "Should they require immediate treatment, the sick or injured crewmen are at a disadvantage compared to a shoreside employee. But, they are never completely without medical assistance."

"All ships carry a complete first aid kit and deck officers are required to be trained in first aid before being licensed by the U.S. Coast Guard," said Dr. Sullivan. Their training qualifies them to treat burns, fractures and other such injuries. They are also dispensed a limited number of drugs such as Tetracycline for infections, Mylanta for gastric problems and various non-prescription drugs.

Recently the first officer aboard USNS Kane treated a crewman who

had injured his hand. The first officer contacted MSC, Atlantic, described the injury, and was advised to keep the man on board until the ship docked at Rota, Spain. The first officer cleaned the wound and bandaged it. The crewman was treated at the U.S. Naval Hospital when the ship arrived at Rota and was repatriated to New York where his injury was examined by a doctor at MSC, Atlantic. He was then referred to the Public Health Service hospital in Staten Island for treatment by an orthopedic specialist.

Some MSC ships have hospitals, including the fleet support vessels USNS Rigel, Passumpsic and Taluga and special project ships USNS Arnold and Chauvenet. Nurses who serve aboard such MSC ships are certified by the U.S. Coast Guard. Most are former military corpsmen qualified to perform minor surgery and they have additional drugs at their disposal.

In July 1976 a crewman aboard USNS Arnold suffered a heart attack. Upon the nurse's recommendation, the Arnold's master contacted the Public Health Service hospital in Honolulu which advised that the crewman remain on board unless his condition worsened, in which case the U.S. Coast Guard should be asked to evacuate the patient. The nurse provided emergency care for the crewman until Arnold reached Honolulu where an ambulance, sent by MSC, Pacific was waiting. He was treated at Tripler Army Medical Center in Honolulu. When his condition allowed, the crewman was repatriated to the United States and referred to a Public Health Service hospital.

Should an emergency arise which requires hospitalization, crewmen can be evacuated from a ship," Dr. Sullivan said. "The ship can radio nearby vessels that have a doctor on board or a helicopter that can move the patient."

In April 1976, a crewman suffering from severe stomach pains was lifted off USNS Mispillion and taken to the U.S. Army hospital at Camp Kuwae in Okinawa where he was treated for bleeding ulcers. Mispillion's master contacted Kadena Air Base, Japan and requested a helicopter after the ship's nurse reported the crewman required hospitalization. He was in the Air Force hospital for a week and then transferred to the Public Health Service Hospital in San Francisco for further treatment.

Dr. Sullivan now is updating the manual which covers the command's medical program. One section he is revising lists medical supplies every ship is required to stock. "Some items are not as readily available aboard ship as they were several years ago," he said. "I would like to see all ships with limited medical facilities upgraded so that supplies and equipment would be on hand to handle burns, amputations and the tying off of major blood vessels.

"Improving medical assistance available to those who man MSC ships must be a continuing task," he said. ⚓

Photo by ABS Joseph Whalen

A crewman with an injured foot is lifted from the USNS Marias by British Navy helicopter and flown to the carrier USS John F. Kennedy for treatment.

Ice jams New York Harbor under the Brooklyn Bridge during the freeze of early 1977. Ice and near zero temperatures hampered cargo handling and shipping at ports along the U.S. North Atlantic coast. Ice also halted barge traffic on major rivers and brought operations on the Great Lakes to a near halt. Photo by PHI John Francavillo, MSC, Atlantic.

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